

## 2. Department of Virology II

- 1) Aghamohammadi A, Abolhassani H, Kutukculer N, Wassilak SG, Pallansch MA, Kluglein S, Quinn J, Sutter RW, Wang X, Sanal O, Latysheva T, Ikinciogullari A, Bernatowska E, Tuzankina IA, Costa-Carvalho BT, Franco JL, Somech R, Karakoc-Aydiner E, Singh S, Bezrodnik L, Espinosa-Rosales FJ, Shcherbina A, Lau YL, Nonoyama S, Modell F, Modell V, the JMF Centers Network Investigators and Study Collaborators, Barbouche MR, McKinlay MA. Patients with Primary Immunodeficiencies Are a Reservoir of Poliovirus and a Risk to Polio Eradication. *Frontiers in immunology* 8: 685, 2017 [Shimizu H, contributed as one of the JMF Centers Network Investigators and Study Collaborators]
- 2) Akagami M, Ito M, Niira K, Kuroda M, Masuda T, Haga K, Tsuchiaka S, Naoi T, Kishimoto M, Sano K, Omatsu T, Aoki H, Katayama Y, Oba M, Oka T, Ichimaru T, Yamasato H, Ouchi Y, Shirai J, Katayama K, Mizutani T, Nagai M. Complete genome analysis of porcine kobuviruses from the feces of pigs in Japan *Virus Genes*, 2017 Aug; 53: 593-602
- 3) Bartenschlager R, Baumert TF, Bukh J, Houghton M, Lemon SM, Lindenbach BD, Lohmann V, Moradpour D, Pietschmann T, Rice CM, Thimme R, Wakita T. Critical challenges and emerging opportunities in hepatitis C virus research in an era of potent antiviral therapy: Considerations for scientists and funding agencies. *Virus Res.* 2018 Mar 15;248:53-62
- 4) Chong PF, Kira R, Mori H, Okumura A, Torisu H, Yasumoto S, Shimizu H, Fujimoto T, Hanaoka N, Kusunoki S, Takahashi T, Oishi K, Tanaka-Taya K. Acute Flaccid Myelitis Collaborative Study I. Clinical Features of Acute Flaccid Myelitis Temporally Associated With an Enterovirus D68 Outbreak: Results of a Nationwide Survey of Acute Flaccid Paralysis in Japan, August-December 2015. *Clin Infect Dis* 66: 653-664, 2018
- 5) Doan YH, Suzuki Y, Fujii Y, Haga K, Fujimoto A, Takai-Todaka R, Someya Y, Nayak MK, Mukherjee A, Imamura D, Shinoda S, Chawla-Sarkar M, Katayama K: Complex reassortment events of unusual G9P[4] rotavirus strains in India between 2011 and 2013. *Infect Genet Evol.* 2017, 54: 417-428
- 6) Fukuhara T, Tamura T, Ono C, Shiokawa M, Mori H, Uemura K, Yamamoto S, Kurihara T, Okamoto T, Suzuki R, Yoshii K, Kurosu T, Igarashi M, Aoki H, Sakoda Y, Matsuura Y. Host-derived apolipoproteins play comparable roles with viral secretory proteins Erns and NS1 in the infectious particle formation of Flaviviridae. *PLoS Pathog.* e1006475. (2017)
- 7) Fukushima S., Kiyohara T., Ishii K., Nakano T. and Hamada A. Immunogenicity of aluminum-adsorbed hepatitis A vaccine (Havrix®) administered as a third dose after primary doses of Japanese aluminum-free hepatitis A vaccine (Aimmugen®) for Japanese travelers to endemic countries. *Vaccine* 35: 6412-6415 (2017)
- 8) Hansen MD, Johnsen IB, Stiberg KA, Sherstova T, Wakita T, Richard GM, Kandasamy RK, Meurs EF, Anthonsen MW. Hepatitis C virus triggers Golgi fragmentation and autophagy through the immunity-related GTPase M. *Proc Natl Acad Sci U S A.* 2017 Apr 25;114(17):E3462-E3471
- 9) Hasegawa K, Yuichi Someya, Hideki Shigematsu, Tomomi Kimura-Someya, Takashi Kumasaka

- Crystallization and preliminary X-ray analysis of 23-nm virus-like particles from norovirus Chiba strain. *Acta Crystallography*, F73, 568-573, 2017
- 10) Huimin Bai, Ling Fang, Michiyo Kataoka, Naokazu Takeda, Takaji Wakita and Tian-Cheng Li\* Characterization of Porcine Sapelovirus Isolated from Japanese Swine with PLC/PR<sub>8</sub>/F5 Cells. *Transbound Emerg Dis*. 2017 Dec 28. doi: 10.1111/tbed.12796
  - 11) Ito M, Sun S, Fukuhara T, Suzuki R, Tamai M, Yamauchi T, Nakashima K, Tagawa Y, Okazaki S, Matsuura Y, Wakita T, Suzuki T. Development of hepatoma-derived, bidirectional oval-like cells as a model to study host interactions with hepatitis C virus during differentiation. *Oncotarget*. 33:53899-53915. (2017)
  - 12) Iwamoto M, Cai D, Sugiyama M, Suzuki R, Aizaki H, Ryo A, Ohtani N, Tanaka Y, Mizokami M, Wakita T, Guo H, Watashi K. Functional association of cellular microtubules with viral capsid assembly supports efficient hepatitis B virus replication. *Sci Rep* 7: 10620 (2017)
  - 13) Kai Y, Hikita H, Morishita N, Murai K, Nakabori T, Iio S, Hagiwara H, Imai Y, Tamura S, Tsutsui S, Naito M, Nishiuchi M, Kondo Y, Kato T, Suemizu H, Yamada R, Oze T, Yakushijin T, Hiramatsu N, Sakamori R, Tatsumi T, Takehara T. Baseline quasispecies selection and novel mutations contribute to emerging resistance-associated substitutions in hepatitis C virus after direct-acting antiviral treatment. *Sci Rep*. 7: 41660. doi: 10.1038/srep41660, 2017
  - 14) Kaneko M, Futamura Y, Tsukuda S, Kondoh Y, Sekine T, Hirano H, Fukano K, Ohashi H, Saso W, Morishita R, Matsunaga S, Kawai F, Ryo A, Park SY, Suzuki R, Aizaki H, Ohtani N, Sureau C, Wakita T, Osada H, Watashi K. Chemical array system, a platform to identify novel hepatitis B virus entry inhibitors targeting sodium taurocholate cotransporting polypeptide. *Sci Rep*. 8(1):2769. (2018)
  - 15) Kato M, Hamada-Tsutsumi S, Okuse C, Sakai A, Matsumoto N, Sato M, Sato T, Arito M, Omoteyama K, Suematsu N, Okamoto K, Kato T, Itoh F, Sumazaki R, Tanaka Y, Yotsuyanagi H, Kato T, Kurokawa-Suzuki M. Effects of vaccine-acquired polyclonal anti-HBs antibodies on the prevention of HBV infection of non-vaccine genotypes. *J Gastroenterol*. doi: 10.1007/s00535-017-1316-3, 2017
  - 16) Hasegawa K, Yuichi Someya, Hideki Shigematsu, Tomomi Kimura-Someya, Takashi Kumasaka Crystallization and preliminary X-ray analysis of 23-nm virus-like particles from norovirus Chiba strain. *Acta Crystallography*, F73, 568-573, 2017
  - 17) Kitamura K, Que L, Shimadu M, Koura M, Ishihara Y, Wakae K, Nakamura T, Watashi K, Wakita T, Muramatsu M. Flap endonuclease 1 is involved in cccDNA formation in the hepatitis B virus. *PLoS Pathog*. 2018 Jun 21;14(6):e1007124
  - 18) Koizumi Y, Ohashi H, Nakajima S, Tanaka Y, Wakita T, Perelson AS, Iwami S, Watashi K. Quantifying antiviral activity optimizes drug combinations against hepatitis C virus infection. *Proc Natl Acad Sci USA* 114: 1922-1927 (2017)
  - 19) Kondo K, Tsugawa T, Ono M, Ohara T, Fujibayashi S, Tahara Y, Kubo N, Nakata S, Higashidate Y, Fujii Y, Katayama K, Yoto Y, Tsutsumi H: Clinical and Molecular Characterization of the 2014 G8P[8] Rotavirus Outbreak in Japan. *Emerg Infect Dis*. 2017, 23(6):968-972

- 20) Kuroda M, Masuda T, Ito M, Naoi Y, Doan YH, Haga K, Tsuchiaka S, Kishimoto M, Sano K, Omatsu T, Katayama Y, Oba M, Aoki H, Ichimaru T, Sunaga F, Mukono I, Yamasato H, Shirai J, Katayama K, Mizutani T, Oka T, Nagai M. Genetic diversity and intergenogroup recombination events of sapoviruses detected from feces of pigs in Japan. *Infection, Genetics and Evolution*, 2017 Nov; 55: 209-217
- 21) Kuroda M, Masuda T, Ito M, Naoi Y, Doan YH, Haga K, Tsuchiaka S, Kishimoto M, Sano K, Omatsu T, Katayama Y, Oba M, Aoki H, Ichimaru T, Sunaga F, Mukono I, Yamasato H, Shirai J, Katayama K, Mizutani T, Oka T, Nagai M. Genetic diversity and intergenogroup recombination events of sapoviruses detected from feces of pigs in Japan. *Infect Genet Evol* 55: 209-217, 2017
- 22) Li TC, Yoshizaki S, Ami Y, Suzaki Y, John R, Wakita T. No evidence of rat hepatitis E virus excretion into urine of rats. *Jpn J Infect Dis*. 70: 305-307 (2017)
- 23) Li TC, Yoshizaki S, Kataoka M, Ami Y, Suzaki Y, Doan YH, Haga K, Ishii K, Takeda N, Wakita T. Genetic and physicochemical analyses of a novel ferret hepatitis E virus, and clinical signs of infection after birth. *Infect Genet Evol* 51:153-159, 2017
- 24) Li TC, Yoshizaki S, Kataoka M, Doan YH, Ami Y, Suzaki Y, Nakamura T, Takeda N, Wakita T. Determination of Ferret Enteric Coronavirus Genome in Laboratory Ferrets. *Emerg Infect Dis* 23: 1568-1570, 2017
- 25) Li TC, Yoshizaki S, Zhou X, Sentsui H, Shirato K, Matsuyama S, Melaku SK, Bazartseren B, Takeda N, Wakita T. Serological evidence of hepatitis E virus infection in dromedary camels in Ethiopia. *J Virol Methods*. 246: 34-37 (2017)
- 26) Li TC, Yoshizaki S, Kataoka M, Ami Y, Suzaki Y, Doan Y.H., Haga K., Ishii K, Takeda N. and Wakita T. Genetic and physicochemical analyses of a novel ferret hepatitis E virus, and clinical signs of infection after birth. *Infection, Genetics and Evolution* 25; 153-159 (2017)
- 27) Loo TM, Kamachi F, Watanabe Y, Yoshimoto S, Kanda H, Arai Y, Nakajima-Takagi Y, Iwama A, Koga T, Sugimoto Y, Ozawa T, Nakamura M, Kumagai M, Watashi K, Taketo MM, Aoki T, Narumiya S, Oshima M, Arita M, Hara E, Ohtani N. Gut microbiota promotes obesity-associated liver cancer through PGE2-mediated suppression of antitumor immunity. *Cancer Discov* 7: 522-538 (2017)
- 28) Mizukoshi F, Nagasawa K, Doan YH, Haga K, Yoshizumi S, Ueki Y, Shinohara, Ishikawa M, Sakon N, Shigemoto N, Okamoto-Nakagawa R, Ochi A, Murakami K, Ryo A, Suzuki Y, Katayama K, Kimura H. Molecular Evolution of the RNA-Dependent RNA Polymerase and Capsid Genes of Human Norovirus Genotype GII.2 in Japan during 2004-2015. *Front Microbiol*. 8:705, 2017
- 29) Murayama A, Sugiyama N, Suzuki R, Moriyama M, Nakamura M, Mochizuki H, Wakita T, Kato T. Amino Acid Mutations in the NS4A Region of Hepatitis C Virus Contribute to Viral Replication and Infectious Virus Production. *J Virol*. 91. doi:10.1128/JVI.02124-16, 2017
- 30) Noguchi A, Ito H, Miura S, Fujii Y, Katayama K, Nakagomi T, Nakagomi O, Takahashi T. Regional variations in the incidence of rotavirus hospitalizations between children living in defined regions of Akita and Kyoto prefectures, Japan. *Jpn J Infect Dis*. 2017, 70(2):167-170
- 31) Ogura N, Ogawa K, Watashi K, Ito T, Wakita T. Novel stable HBV producing cell line systems for expression and screening antiviral inhibitor of

- hepatitis B virus in human hepatoma cell line. *Biochem Biophys Res Commun.* 498(1):64-71 (2018)
- 32) Ohashi H, Koizumi Y, Fukano K, Wakita T, Perelson AS, Iwami S, Watashi K. Reply to Padmanabhan and Dixit: Hepatitis C virus entry inhibitors for optimally boosting direct-acting antiviral-based treatments. *Proc Natl Acad Sci USA* 114: E4527-E4529 (2017)
  - 33) Ohba M, Oka T, Ando T, Arahata S, Ikegaya A, Takagi H, Ogo N, Zhu C, Owada K, Kawamori F, Wang Q, Saif LJ, Asai A. Antiviral effect of theaflavins against caliciviruses. *The Journal of Antibiotics* (2017) 70, 443–447
  - 34) Oka T, Doan YH, Haga K, Mori K, Ogawa T, Yamazaki A. Genetic characterization of rare genotype GII.5 sapovirus strain detected from food-borne suspected gastroenteritis outbreak among adults in Japan, 2010. *Jpn J Infect Dis.* 2017; 70: 223-224
  - 35) Oka T, Doan YH, Shimoike T, Haga K, Takizawa K. First complete genome sequences of genogroup V, genotype 3 porcine sapoviruses: common 5'-terminal genomic feature of sapoviruses *Virus Genes*, 2017 Dec; 53: 848-855
  - 36) Oka T, Iritani N, Okada M, Ogawa T, Iizuka S, Tatsumi C, Harada S, Haga K, Doan YH. First Complete Genome Sequences of Human Sapovirus Strains Classified as GI.3, GI.4, GI.6, GI.7, and GII.7. *Genome Announc.* 2018 Mar 22;6(12). pii: e00168-18
  - 37) Oka T, Stoltzfus GT, Zhu C, Jung K, Wang Q, Saif LJ. Attempts to grow human noroviruses, a sapovirus, and a bovine norovirus in vitro. *PLoS One*, 2018 Feb;13(2):e0178157
  - 38) Ono C, Fukuhara T, Motooka D, Nakamura S, Okuzaki D, Yamamoto S, Tamura T, Mori H, Sato A, Uemura K, Fauzyah Y, Kurihara T, Suda T, Nishio A, Hmwe SS, Okamoto T, Tatsumi T, Takehara T, Chayama K, Wakita T, Koike K, Matsuura Y. Characterization of miR-122-independent propagation of HCV. *PLoS Pathog.* 2017 May 11;13(5):e1006374
  - 39) Pham NTK, Thongprachum A, Baba T, Okitsu S, Trinh QD, Komine-Aizawa S, Shimizu H, Hayakawa S, Ushijima H. A 3-month-old child of acute gastroenteritis with enterovirus D68 detected from stool specimen. *Clin. Lab* 63: 1269-1272, 2017
  - 40) Pham NTK, Thongprachum A, Trinh QD, Okitsu S, Komine-Aizawa S, Shimizu H, Hayakawa S, Ushijima H. Detection and genetic characterization of enterovirus strains circulating among children with acute gastroenteritis in Japan during 2014-2016. *Infect Genet Evol* 61: 16-19, 2018
  - 41) Que L, Liu G, Kitamura K, Wakae K, Li Y, Nishitsuji H, Ujino S, Shimotohno K, Muramatsu M. Molecular characterization of AID-mediated reduction of hepatitis B virus transcripts. *Virology.* 2017;510:281-288
  - 42) Ruchusatsawat K., Wongpiyabovorn J., Kawidam C., Thiemsing L., Sangkitporn S., Yoshizaki S., Tatsumi M., Takeda N. and Ishii K. An Outbreak of Acute Hepatitis Caused by Genotype IB Hepatitis A Viruses Contaminating the Water Supply in Thailand. *Intervirology* 59: 197-203 (2017)
  - 43) Sakurai F, Kunito T, Takayama K, Hashimoto R, Tachibana M, Sakamoto N, Wakita T, Mizuguchi H. Hepatitis C virus-induced innate immune responses in human iPS cell-derived hepatocyte-like cells. *Virus Res.* 2017 Sep 9;242:7-15.
  - 44) Sakurai F, Mitani S, Yamamoto T, Takayama K, Tachibana M, Watashi K, Wakita T, Iijima S, Tanaka Y, Mizuguchi H. Human induced-pluripotent stem cell-derived hepatocyte-like cells as an in vitro model of human hepatitis B virus infection. *Sci Rep* 7: 45698 (2017)
  - 45) Sato H, Yokoyama M, Nakamura H, Oka T, Katayama K, Takeda N, Noda M, Tanaka

- T, Motomura K. Evolutionary Constraints on the Norovirus Pandemic Variant GII.4\_2006b over the Five-Year Persistence in Japan. *Front Microbiol.* 2017 13;8:410
- 46) Scott T, Moyo B, Nicholson S, Maepa MB, Watashi K, Ely A, Weinberg MS, Arbuthnot P. ssAAVs containing cassettes encoding SaCas9 and guides targeting hepatitis B virus inactivate replication of the virus in cultured cells. *Sci Rep* 7: 7401 (2017)
- 47) Seishima N, Kondo S, Wakae K, Wakisaka N, Kobayashi E, Kano M, Moriyama-Kita M, Nakanishi Y, Endo K, Imoto T, Ishikawa K, Sugimoto H, Hatano M, Ueno T, Koura M, Kitamura K, Muramatsu M, Yoshizaki T. Expression and subcellular localisation of AID and APOBEC3 in adenoid and palatine tonsils. *Sci Rep.* 2018 Jan 17;8(1):918
- 48) Shimura S, Watashi K, Fukano K, Peel M, Sluder A, Kawai F, Iwamoto M, Tsukuda S, Takeuchi JS, Miyake T, Sugiyama M, Ogasawara Y, Park SY, Tanaka Y, Kusuhara H, Mizokami M, Sureau C, Wakita T. Cyclosporin derivatives inhibit hepatitis B virus entry without interfering the NTCP transporter. *J Hepatol* 66: 685-692 (2017)
- 49) Sugiyama R, Murayama A, Nitta S, Yamada N, Tasaka-Fujita M, Masaki T, Aly HH, Shiina M, Ryo A, Ishii K, Wakita T, Kato T. Interferon sensitivity-determining region of hepatitis C virus influences virus production and interferon signaling. *Oncotarget.* 2017 21;9(5):5627-5640
- 50) Sun S, Nakashima K, Ito M, Li Y, Chida T, Takahashi H, Watashi K, Sawasaki T, Wakita T, Suzuki T. Involvement of PUF60 in Transcriptional and Post-transcriptional Regulation of Hepatitis B Virus Genomic RNA Expression. *Sci Rep* 7: 12874 (2017)
- 51) Iizuka T, Kousho Wakae, Mitsuhiro Nakamura, Koichi Kitamura, Masanori Ono, Hiroshi Fujiwara, and Masamichi Muramatsu APOBEC3G is increasingly expressed on the human uterine cervical intraepithelial neoplasia along with disease progression *Am J Reprod Immunol* 2017 Oct;78(4)
- 52) Thongprachum A, Khamrin P, Thi Kim Pham N, Takanashi S, Okitsu S, Shimizu H, Maneekarn N, Hayakawa S Ushijima H. Multiplex RT-PCR for rapid detection of viruses commonly causing diarrhea in pediatric patients. *J Med Virol* 89: 818-824, 2017
- 53) Tsukuda S, Watashi K, Hojima T, Isogawa M, Iwamoto M, Omagari K, Suzuki R, Aizaki H, Kojima S, Sugiyama M, Saito A, Tanaka Y, Mizokami M, Sureau C, Wakita T. A new class of hepatitis B and D virus entry inhibitors, proanthocyanidin and its analogs, that directly act on the viral large surface proteins. *Hepatology* 65: 1104-1116 (2017)
- 54) Utsumi T, Lusida MI, Dinana Z, Wahyuni RM, Yamani LN, Juniastuti, Soetjipto, Matsui C, Deng L, Abe T, Doan YH, Fujii Y, Kimura H, Katayama K, Shoji I: Occurrence of norovirus infection in an asymptomatic population in Indonesia. *Infect Genet Evol.* 2017, 55:1-7
- 55) Utsumi T, Wahyuni RM, Doan YH, Dinana Z, Soegijanto S, Fujii Y, Juniastuti, Yamani LN, Matsui C, Deng L, Abe T, Soetjipto, Lusida MI, Ishii K, Shimizu H, Katayama K Shoji I. Equine-like G3 rotavirus strains as predominant strains among children in Indonesia in 2015-2016. *Infect Genet Evol* 61: 224-228, 2018
- 56) Wang W, Wang Y, Qu C, Wang S, Zhou J, Cao W, Xu L, Ma B, Hakim MS, Yin Y, Li TC, Peppelenbosch MP, Zhao J, Pan Q. The RNA genome of hepatitis E virus robustly triggers an antiviral interferon response. *Hepatology.* 2018 67(6): 2096-2112. doi: 10.1002/hep.29702
- 57) Watanabe R, Mizoguchi H, Oikawa H, Ohashi H, Watashi K, Oguri H. Stereo-controlled synthesis of functionalized tetrahydropyridines based on the cyanomethylation of 1,6-dihydropyridines and

- generation of anti-hepatitis C virus agents. *Bioorg Med Chem* 25: 2851-2855 (2017)
- 58) Yamada N, Sugiyama R, Nitta S, Murayama A, Kobayashi M, Okuse C, Suzuki M, Yasuda K, Yotsuyanagi H, Moriya K, Koike K, Wakita T, Kato T. Resistance mutations of hepatitis B virus in entecavir-refractory patients. *Hepatology* 1: 110-121, 2017
- 59) Yamanaka A, Moi ML, Takasaki T, Kurane I, Matsuda M, Suzuki R, Konishi E. Utility of Japanese encephalitis virus subgenomic replicon-based single-round infectious particles as antigens in neutralization tests for Zika virus and three other flaviviruses. *J Virol Methods*. 243:164-171. (2017)
- 60) Yao WL, Ikeda S, Tsukamoto Y, Shindo K, Otakaki Y, Qin M, Iwasawa Y, Takeuchi F, Kaname Y, Chou YC, Chang C, Watashi K, Wakita T, Noda T, Kato H, Fujita T. Establishment of a human hepatocellular cell line capable of maintaining long-term replication of hepatitis B virus. *Int Immunol* 29: 109-120 (2017)
- 61) Yasumoto J, Kasai H, Yoshimura K, Otaguro T, Watashi K, Wakita T, Yamashita A, Tanaka T, Takeda S, Moriishi K. Hepatitis B virus prevents excessive viral production via reduction of cell-death inducing DFF45-like effectors. *J Gen Virol* 98: 1762-1773 (2017)
- 62) Yokoyama M, Oka T, Takagi H, Kojima H, Okabe T, Nagano T, Tohya Y, Sato H. A Proposal for a Structural Model of the Feline Calicivirus Protease Bound to the Substrate Peptide under Physiological Conditions *Frontiers in Microbiology*, 2017 Jul; 8: 1383
- 63) Someya Y, Yasushi Ami, Reiko Takai-Todaka, Akira Fujimoto, Kei Haga, Kosuke Murakami, Yoshiki Fujii, Haruko Shirato, Tomoichiro Oka, Takashi Shimoike, Kazuhiko Katayama, and Takaji Wakita. Evaluation of the use of various rat strains for immunogenic potency tests of Sabin-derived inactivated polio vaccines. *Biologicals*, 52, 12-17, 2018
- 64) Arita M., Dobrikov G., Pürstinger G., Galabov AS. Allosteric regulation of phosphatidylinositol 4-kinase III beta by an anti-picornavirus compound MDL-860. *ACS Infectious Diseases*, 3: 585-594, 2017